

EXHIBIT G**Alfa Aesar***A Johnson Matthey Company*

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**ALL-IN-ONE
2001-02 CATALOG**

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Superconducting Materials

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Superconducting Materials

Stock No.	Description	Quantity	Price
39192	Barium calcium copper oxide (2-1-2), 99.9% (metals basis) Ba ₂ CaCu ₃ O _{7-x} , Multiple Phases, Fine Agglomerate & Ballmilled Powder, UN1564	10g 50g	\$4.50 175.00
39193	Barium calcium copper oxide (2-2-3), 99.9% (metals basis) Ba ₂ Ca ₂ Cu ₃ O _{7-x} , Multiple Phases, Dry-milled Powder, UN1564	10g 50g	47.30 134.00
40122	Barium calcium copper oxide (2-2-3), 99.9% (metals basis) Ba ₂ Ca ₂ Cu ₃ O _{7-x} , Multiple Phases, Fine Agglomerate, UN1564	10g 50g	47.30 134.00
40444	Barium copper oxide (1-1), 99.9% (metals basis) BaCuO ₂ , Single Phase, Fine Agglomerate, Application(s): Preparation of superconducting powders, UN1564	10g 50g	55.20 222.00
40467	Bismuth strontium calcium copper oxide, (2-2-1-2), 99.9% (metals basis) Bi ₂ ST ₂ CaCu ₂ O _{7-x} , Fine Agglomerate, Note: High Tc Superconductor Powder (requires calibration)	10g 50g	81.00 339.00
35678	Bismuth strontium calcium copper oxide, (2-2-1-2), 99.9% (metals basis) Bi ₂ ST ₂ CaCu ₂ O _{7-x} , Ball-Milled, Note: High Tc Superconductor Powder (requires calibration)	10g 50g	81.00 339.00
35634	Yttrium barium copper oxide (1-2-3), 99.9% (metals basis) YBa ₂ Cu ₃ O _{7-x} , 1-6 Micron Powder, Application(s): High Tc Superconductor Powder, UN1564	25g 100g	69.60 208.00
35674	Yttrium barium copper oxide (1-2-4), 99.9% (metals basis) YBa ₂ Cu ₄ O _{8-x} , Precursor, Fine Agglomerate, UN1564	25g 100g	51.50 149.00
39191	Yttrium barium copper oxide (2-1-1), 99.9% (metals basis) Y ₂ BaCu ₃ O _{7-x} , Powder, Fine Agglomerate, Single Phase, Note: Insulating phase, UN1564	10g 50g	45.00 127.00

Best Available Copy

1-800-343-0660

Materials Technology and Crystals

Single Crystal Substrates

For R&D and Commercial Application

Johnson Matthey, known for its high purity metals and inorganics, produces and supplies a wide range of materials for electronic, photonic, and coating applications. Below is a representation of most materials available from Alfa Aesar.

Single Crystal Oxides

Aluminum oxide	Magnesium oxide
Barium titanium oxide	Silicon oxide
Lanthanum aluminum oxide	Strontium titanium oxide
Lithium niobium oxide	

Optical Materials for Spectroscopy and Other Applications

Barium fluoride	Lithium fluoride	Silver chloride
Calcium fluoride	Magnesium fluoride	Sodium chloride
Cesium iodide	Potassium bromide	Zinc selenide
Fused silica	Potassium chloride	Zinc sulfide
Germanium	Silicon	

Superconducting Powders

We supply high purity starting materials, consistent from batch to batch. Custom formulations and particle sizes can be tailored to your requirements.

Metal Crystals

Aluminum	Dysprosium	Manganese	Silver
Antimony	Gadolinium	Molybdenum	Tantalum
Bismuth	Germanium	Nickel	Tin
Cadmium	Gold	Niobium	Tungsten
Chromium	Iron	Palladium	Vanadium
Cobalt	Iridium	Platinum	Zinc
Copper	Lead	Rhodium	

Coating Materials

Alfa Aesar offers an exclusive line of oxides, fluorides, pure metals and precursors for CVD, PVD, and Sol-Gel applications.

Semiconductor Materials (III-V)

Selection of grades, doping concentrations, flats, orientations, etc. may be limited.

Gallium arsenide	Indium antimonide
Gallium phosphide	Indium arsenide
Indium phosphide	

Most mono-crystal materials are available in raw crystal boules, cut, and shaped blanks, polished windows, substrates, water/planes, chunks, and powders. Growth methods, which may vary from material to material, include: Czochralski (pulling) technique, Bridgeman/Stockbarger (sealed crucible) technique, Zone melting, Verneuil (flame fused) method and method using nutrient solutions. Call toll-free 1-888-343-8025 to discuss your requirements.

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We accept corporate credit cards

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Physical Vapor Deposition
& Electronics

Single Crystal Substrates

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Single Crystal Substrates

Stock No.	Description	Quantity	Price
38499	Aluminum oxide substrate, 10x10x0.5mm, polished one side, A plane Al_2O_3 , †	1each Seach	59.00 239.00
41426	Aluminum oxide substrate, 10x10x0.5mm, polished two sides, A plane Al_2O_3	1each Seach	69.00 269.00
38497	Aluminum oxide substrate, 10x10x0.5mm, polished one side, C plane Al_2O_3 , †	1each Seach	58.00 256.00
41428	Aluminum oxide substrate, 10x10x0.5mm, polished two sides, C plane Al_2O_3	1each Seach	67.20 296.00
38499	Aluminum oxide substrate, 10x10x0.5mm, polished one side, M plane Al_2O_3 , †	1each Seach	56.70 256.00
41430	Aluminum oxide substrate, 10x10x0.5mm, polished two sides, M plane Al_2O_3	1each Seach	63.50 276.00
38500	Aluminum oxide substrate, 10x10x0.5mm, polished one side, R plane Al_2O_3 , †	1each Seach	57.00 232.00
41432	Aluminum oxide substrate, 10x10x0.5mm, polished two sides, R plane Al_2O_3	1each Seach	69.00 265.00
40280	Aluminum oxide substrate, 10x10x1mm, polished one side, A plane Al_2O_3 , †	1each Seach	57.70 216.00
41427	Aluminum oxide substrate, 10x10x1mm, polished two sides, A plane Al_2O_3	1each Seach	79.00 329.00
40281	Aluminum oxide substrate, 10x10x1mm, polished one side, C plane Al_2O_3 , †	1each Seach	69.00 267.00
41429	Aluminum oxide substrate, 10x10x1mm, polished two sides, C plane Al_2O_3	1each Seach	78.00 329.00
41431	Aluminum oxide substrate, 10x10x1mm, polished two sides, M plane Al_2O_3	1each Seach	79.80 323.00
40282	Aluminum oxide substrate, 10x10x1mm, polished one side, R plane Al_2O_3 , †	1each Seach	69.00 266.00
41433	Aluminum oxide substrate, 10x10x1mm, polished two sides, R plane Al_2O_3	1each Seach	78.00 329.00
40264	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 6.35mm dia x 0.5mm thick, random orientation, †	1pc 5pcs	78.80 296.00
40265	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 6.35mm dia x 1.0mm thick, random orientation, †	1pc 5pcs	81.00 304.00
40266	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 6.35mm dia x 2.0mm thick, random orientation, †	1pc 5pcs	84.40 317.00
40267	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 6.35mm dia x 3.2mm thick, random orientation, †	1pc 5pcs	86.70 325.00
40260	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 12.7mm dia x 0.5mm thick, random orientation, †	1pc 5pcs	69.00 333.00

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We welcome your comments -- call 1-800-343-0660

1-800-343-0660

Single Crystal Substrates

Stock No.	Description	Quantity	Price
40261	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 12.7mm dia x 1.0mm thick, random orientation, †	1pc 5pcs	91.20 342.00
40262	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 12.7mm dia x 2.0mm thick, random orientation, †	1pc 5pcs	93.50 350.00
40263	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 12.7mm dia x 3.2mm thick, random orientation, †	1pc 5pcs	95.70 359.00
38649	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 25.4mm dia x 0.5mm thick, random orientation, †	1pc 5pcs	101.00 381.00
40257	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 25.4mm dia x 1.0mm thick, random orientation, †	1pc 5pcs	107.00 401.00
40258	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 25.4mm dia x 2.0mm thick, random orientation, †	1pc 5pcs	109.00 409.00
40259	Aluminum oxide, single crystal, 99.9% (metals basis) Al_2O_3 , 25.4mm dia x 3.2mm thick, random orientation, †	1pc 5pcs	111.00 416.00
38501	Lanthanum aluminum oxide substrate, 10x10x0.5mm, polished one side, 100 orientation $LaAlO_3$, †	1each Seach	97.90 441.00
41434	Lanthanum aluminum oxide substrate, 10x10x0.5mm, polished 2 sides, 100 orientation $LaAlO_3$	1each Seach	103.00 456.00
38495	Lanthanum aluminum oxide substrate, 10x10x1mm, polished one side, 100 orientation $LaAlO_3$, †	1each Seach	107.00 496.00
41435	Lanthanum aluminum oxide substrate, 10x10x1mm, polished 2 sides, 100 orientation $LaAlO_3$	1each Seach	113.00 517.00
38427	Magnesium oxide substrate, 10x10x0.5mm, polished one side, 100 orientation MgO , †	1each Seach	64.80 256.00
41436	Magnesium oxide substrate, 10x10x0.5mm, polished two sides, 100 orientation MgO	1each Seach	65.70 251.00
40272	Magnesium oxide substrate, 10x10x0.5mm, polished one side, 110 orientation MgO , †	1each Seach	65.10 244.00
40273	Magnesium oxide substrate, 10x10x0.5mm, polished one side, 111 orientation MgO , †	1each Seach	66.10 267.00
38503	Magnesium oxide substrate, 10x10x1mm, polished one side, 100 orientation MgO , †	1each Seach	59.00 234.00
41437	Magnesium oxide substrate, 10x10x1mm, polished two sides, 100 orientation MgO	1each Seach	69.00 269.00
40274	Magnesium oxide substrate, 10x10x1mm, polished one side, 110 orientation MgO , †	1each Seach	75.00 290.00
38504	Neodymium gallium oxide substrate, 10x10x0.5mm, polished one side, 110 orientation $NdGaO_3$, †	1each Seach	139.00 626.00
41438	Neodymium gallium oxide substrate, 10x10x0.5mm, polished two sides, 110 orientation $NdGaO_3$	1each Seach	148.00 641.00

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Single Crystal Substrates

Stock No.	Description	Quantity	Price
38505	Splined substrate, 10x10x0.5mm, polished one side, 100 orientation MgO ₂	1each Seach	61.00 276.00
42620	Strontium titanium oxide substrate, 5x5x0.5mm, polished one side, 100 orientation SrTiO ₃	1each Seach	96.00 328.00
42668	Strontium titanium oxide substrate, 5x5x0.5mm, polished two sides, 100 orientation SrTiO ₃	1each Seach	99.00 361.00
42619	Strontium titanium oxide substrate, 5x5x0.5mm, polished one side, 110 orientation SrTiO ₃	1each Seach	98.00 333.00
42669	Strontium titanium oxide substrate, 5x5x0.5mm, polished two sides, 110 orientation SrTiO ₃	1each Seach	100.00 364.00
42694	Strontium titanium oxide substrate, 5x5x0.5mm, polished two sides, 111 orientation SrTiO ₃	1each Seach	103.00 364.00
42621	Strontium titanium oxide substrate, 5x5x1mm, polished one side, 100 orientation SrTiO ₃	1each Seach	98.00 366.00
42670	Strontium titanium oxide substrate, 5x5x1mm, polished two sides, 100 orientation SrTiO ₃	1each Seach	116.00 396.00
42622	Strontium titanium oxide substrate, 5x5x1mm, polished one side, 110 orientation SrTiO ₃	1each Seach	100.00 374.00
42671	Strontium titanium oxide substrate, 5x5x1mm, polished two sides, 110 orientation SrTiO ₃	1each Seach	118.00 398.00
42618	Strontium titanium oxide substrate, 6.25x6.25x0.5mm, polished one side, 100 orientation SrTiO ₃	1each Seach	93.90 348.00
42617	Strontium titanium oxide substrate, 6.25x6.25x0.5mm, polished one side, 110 orientation SrTiO ₃	1each Seach	96.00 354.00
38506	Strontium titanium oxide substrate, 10x10x0.5mm, polished one side, 100 orientation SrTiO ₃	1each Seach	117.00 544.00
41439	Strontium titanium oxide substrate, 10x10x0.5mm, polished two sides, 100 orientation SrTiO ₃	1each Seach	122.00 545.00
40276	Strontium titanium oxide substrate, 10x10x0.5mm, polished one side, 110 orientation SrTiO ₃	1each Seach	129.00 599.00
40277	Strontium titanium oxide substrate, 10x10x0.5mm, polished one side, 111 orientation SrTiO ₃	1each Seach	135.00 625.00
38507	Strontium titanium oxide substrate, 10x10x1mm, polished one side, 100 orientation SrTiO ₃	1each Seach	143.00 678.00
41440	Strontium titanium oxide substrate, 10x10x1mm, polished two sides, 100 orientation SrTiO ₃	1each Seach	155.00 683.00
40278	Strontium titanium oxide substrate, 10x10x1mm, polished one side, 110 orientation SrTiO ₃	1each Seach	130.00 599.00

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Call 1-888-343-6025 for pricing on larger than catalog sizes

Stock No.	Description	Quantity	Price
40279	Strontium titanium oxide substrate, 10x10x1mm, polished one side, 111 orientation SrTiO ₃	1each Seach	135.00 626.00
38508	Zirconium oxide Yttrium oxide substrate, 10x10x0.5mm, polished one side, 100 orientation ZrO ₂ + 9.5% Y ₂ O ₃	1each Seach	56.70 256.00
41441	Zirconium oxide Yttrium oxide substrate, 10x10x0.5mm, polished 2 sides, 100 orientation ZrO ₂ + 9.5% Y ₂ O ₃	1each Seach	62.60 269.00
38509	Zirconium oxide Yttrium oxide substrate, 10x10x1mm, polished one side, 100 orientation ZrO ₂ + 9.5% Y ₂ O ₃	1each Seach	58.70 256.00
41442	Zirconium oxide Yttrium oxide substrate, 10x10x1mm, polished 2 sides, 100 orientation ZrO ₂ + 9.5% Y ₂ O ₃	1each Seach	67.70 302.00

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